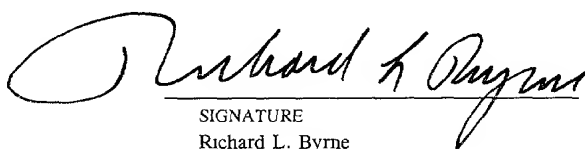


Form PTO-1390 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE (REV 10-95)		ATTORNEY'S DOCKET NUMBER 702-991961
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. APPLICATION NO. (37 CFR 1.5) 09/462224
INTERNATIONAL APPLICATION NO PCT/NL98/00368	INTERNATIONAL FILING DATE 25.06.98 (June 25, 1998)	PRIORITY DATES CLAIMED 04.07.97 (July 04, 1997)
TITLE OF INVENTION RAIL TRACK HAVING ENHANCED ABSORPTION OF VIBRATION AND SOUND		
APPLICANT(S) FOR DO/EO/US <p style="text-align: center;">Marcel Henk André JANSSENS</p>		
<p>Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information</p> <ol style="list-style-type: none"> 1 <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371 2 <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371 3 <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1) 4 <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date 5 <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> a <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau) b <input checked="" type="checkbox"/> has been transmitted by the International Bureau. c <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US) 6 <input type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 7 <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) <ol style="list-style-type: none"> a <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau) b <input type="checkbox"/> have been transmitted by the International Bureau. c <input type="checkbox"/> have not been made, however, the time limit for making such amendments has NOT expired d <input checked="" type="checkbox"/> have not been made and will not be made. 8 <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9 <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) 10 <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)) <p>Items 11. to 16. below concern document(s) or information included:</p> <ol style="list-style-type: none"> 11 <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98 12 <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13 <input checked="" type="checkbox"/> A FIRST preliminary amendment <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment 14 <input type="checkbox"/> A substitute specification 15 <input type="checkbox"/> A change of power of attorney and/or address letter. 16 <input checked="" type="checkbox"/> Other items or information <ol style="list-style-type: none"> a. WO 99/01617-Front Page with Abstract, Specification, Claims, Drawings and Search Report (13 pp) b. International Preliminary Examination Report and Annex (8 pp) 		

U.S. APPLICATION NO. 09/462224 <small>(If known, see 37 CFR 1.53)</small>		INTERNATIONAL APPLICATION NO. PCT/NL98/00368		ATTORNEY'S DOCKET NUMBER 702-991961	
17. <input checked="" type="checkbox"/> The following fees are submitted BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or IPO \$840.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) \$670.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$760.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO. \$970.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$96.00 <div style="text-align: right; margin-top: 10px;">ENTER APPROPRIATE BASIC FEE AMOUNT =</div>				CALCULATIONS PTO USE ONLY <div style="border: 1px solid black; height: 100px; margin-top: 5px;"></div>	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$ 0.00	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	7 - 20	0	X \$18.00	\$ 0.00	
Independent claims	1 - 3 =	0	X \$78.00	\$ 0.00	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$260.00	\$ 0.00	
TOTAL OF ABOVE CALCULATIONS =				\$ 840.00	
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).				\$ 0.00	
SUBTOTAL =				\$ 840.00	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f))				\$ 0.00	
TOTAL NATIONAL FEE =				\$ 840.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31).				\$ 40.00	
TOTAL FEES ENCLOSED =				\$ 880.00	
				Amount to be refunded	\$
				charged	\$
a. <input checked="" type="checkbox"/> A check in the amount of \$ 880.00 to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Assistant Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>23-0650</u> . A duplicate copy of this sheet is enclosed. NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status. <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> SEND ALL CORRESPONDENCE TO Russell D. Orkin 700 Koppers Building 436 Seventh Avenue Pittsburgh, Pennsylvania 15219-1818 Telephone: (412) 471-8815 Facsimile: (412) 471-4094 </div> <div style="width: 45%; text-align: center;">  SIGNATURE Richard L. Byrne NAME 28,498 REGISTRATION NUMBER </div> </div>					

PATENT APPLICATION/PCT
Attorney Docket No. 702-991961

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :
MARCEL HENK ANDRÉ JANSSENS : RAIL TRACK HAVING
: ENHANCED ABSORPTION OF
International Application : VIBRATION AND SOUND
No. PCT/NL98/00368 :
International Filing Date :
25 June 1998 :
Priority Date Claimed :
04 July 1997 :
Serial No. Not Yet Assigned :
Filed Concurrently Herewith :

Pittsburgh, Pennsylvania
January 3, 2000

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington DC 20231

Sir:

Prior to initial examination, please amend the above-identified patent application as follows:

IN THE SPECIFICATION:

Amended page 1, before line 1, insert the following heading:

--BACKGROUND OF THE INVENTION--.

Amended page 2, before line 25, insert the following heading:

--SUMMARY OF THE INVENTION--.

Replace the Amended Sheet containing amended page 2 with the attached retyped pages 2 and 2a.

Page 4, before line 11, insert the following heading:

--BRIEF DESCRIPTION OF THE DRAWINGS--.

Page 4, before line 30, insert the following heading:

--DESCRIPTION OF THE PREFERRED EMBODIMENTS--.

IN THE CLAIMS:

Original claims 1-7 were amended during Chapter II proceedings in a letter dated September 27, 1999. Cancel original claims 1-7, cancel amended claims 1-7 and insert new claims 8-14 as follows:

--8. A rail track comprising at least two parallel rails supported by a non-compressible base body, with the base body provided with a channel-like recess for receiving the rail such that the running surface of the head of the rail lies free, with
5 the bottom of the channel-like recess provided with a first layer of yielding material which extends under the bearing surface of the foot of the rail, and with the surface between the running surface and the bearing surface of the rail covered with a second layer of yielding material.

9. The rail track as claimed in claim 8, wherein the space between the second layer and the channel-like recess is filled with a filler body of non-compressible material.

10. The rail track as claimed in claim 8, wherein the second layer has a greater stiffness than the first layer.

11. The rail track as claimed in claim 8, wherein the second layer has on the one side of the rail a different stiffness than on the other side.

12. The rail track as claimed in claim 8, wherein the cross-section of the rail is asymmetrical.

13. The rail track as claimed in claim 8, wherein the first and/or second layer of yielding material is interrupted.

14. The rail track as claimed in claim 8, wherein the upper side of the base body is provided with a layer of sound-absorbing material.--

IN THE ABSTRACT:

After the claims, please insert a page containing the Abstract Of The Disclosure, which is attached hereto as a separately typed page.

REMARKS

The specification has been amended by this Preliminary Amendment to place the application in conformance with standard United States Patent practice.

New specification pages 2 and 2a have been retyped and are submitted with this Preliminary Amendment for insertion into the application.

Original claims 1-7 and amended claims 1-7 have been canceled and rewritten as claims 8-14 in order to eliminate the multiple dependencies and to conform the claims to standard United States Patent practice.

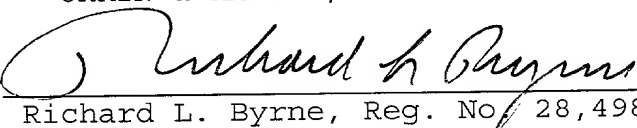
An Abstract Of The Disclosure has been added as a separately typed page to be inserted after the claims.

Examination and allowance of claims 8-14 are respectfully requested.

Respectfully submitted,

WEBB ZIESENHEIM LOGSDON
ORKIN & HANSON, P.C.

BY



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RAIL TRACK HAVING ENHANCED ABSORPTION
OF VIBRATION AND SOUND

ABSTRACT OF THE DISCLOSURE

5 A rail track comprising at least two parallel rails supported by a non-compressible base body, wherein the base body is provided with a channel-like recess for receiving the rail such that the running surface of the head of the rail lies free, wherein the bottom of the channel-like recess is provided with a first layer of yielding material which extends under the bearing surface of the foot of the rail, and wherein the surface between the running surface and the bearing surface of the rail is covered with a second layer of yielding material, so that an improved vibration damping and sound reduction are obtained.

10

regulation that the rails must undergo a displacement of 1.5 to 2.5 mm at an axle load of 22.5 tons.

In addition, the transfer of vibrations to the base body is reduced by this resilient rail support. The resilient element insulates the vibrations, which results in a reduction of the vibration level of the base body and to a reduction in the sound radiation from the base body. The result of a better vibration insulation is that the rail will begin to vibrate more strongly and therefore becomes a more significant source of noise.

Another sound-damping system for rail tracks known from WO-A-9110778 is casting flexible material in the rail. This system has the drawback that the rail begins to radiate sound more efficiently because the casting mass acts as reflector for the sound radiated by the rail and because the casting mass begins to function as an extra source of noise. In addition, use is made herein of a large volume of expensive polymer material to fix the rail.

On the basis of the foregoing, it can be concluded that acoustic measures will have to be taken in a balanced manner in order to reduce the total noise level of all sources together and to obtain an improved vibration damping of the rail track.

The object of the present invention is to achieve a reduction in the noise production of rail tracks while still complying with the regulation of the railway companies. For this purpose a rail track is provided wherein the surface between the running surface and the bearing surface of the rail is covered with a second layer of yielding material.

Since only the running surface of the head of the rail lies free, the sound-radiating surface of the rail is reduced. The layer also radiates a minimum of noise because the surface making contact with the air is minimal. In addition, energy is better dissipated by the

layer in that this is in contact with the non-compressible base body. Finally, a sufficiently large static settlement can be achieved by the first yielding layer, this being a requirement of the railway companies. In addition, the thinner the layer, the better the dissipation and thus also the better the vibration damping of the rail. A thinner layer has the second advantage that a



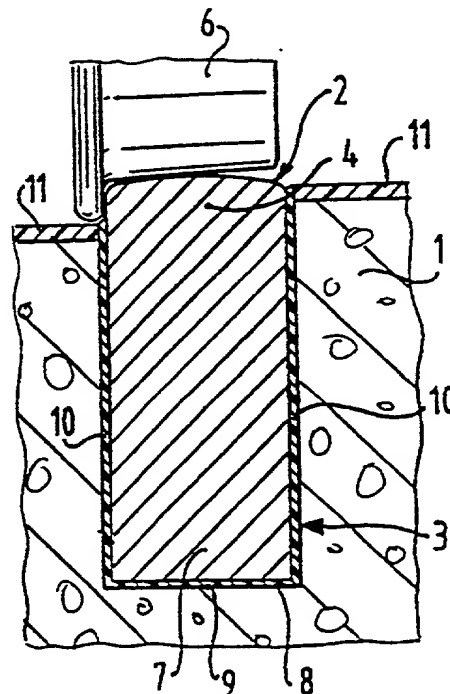
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : E01B 19/00, 9/68, 1/00		A1	(11) International Publication Number: WO 99/01617
			(43) International Publication Date: 14 January 1999 (14.01.99)
(21) International Application Number: PCT/NL98/00368 (22) International Filing Date: 25 June 1998 (25.06.98) (30) Priority Data: 1006483 4 July 1997 (04.07.97) NL (71) Applicant (for all designated States except US): NEDERLANDSE ORGANISATIE VOOR TOEGEPAST-NATUURWETENSCHAPPELIJK ON- DERZOEK TNO [NL/NL]; Schoemakerstraat 97, NL-2628 VK Delft (NL). (72) Inventor; and (75) Inventor/Applicant (for US only): JANSSENS, Marcel, Henk, André [NL/NL]; v.d. Lelijstraat 27-1, NL-2614 ED Delft (NL). (74) Agent: HOORWEG, Petrus, Nicolaas; Arnold & Siedsma, Sweelinckplein 1, NL-2517 GK The Hague (NL).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published With international search report. In English translation (filed in Dutch).	

(54) Title: RAIL TRACK HAVING ENHANCED ABSORPTION OF VIBRATION AND SOUND

(57) Abstract

Rail track comprising at least two parallel rails (2) supported by a non-compressible base body (1), wherein the base body is provided with a channel-like recess for receiving the rail such that the running surface of the head of the rail lies free, wherein the bottom of the channel-like recess is provided with a first layer (9) of yielding material which extends under the bearing surface of the foot of the rail, and wherein the surface between the running surface and the bearing surface of the rail is covered with a second layer (10) of yielding material, so that an improved vibration damping and sound reduction are obtained.



RAIL TRACK HAVING ENHANCED ABSORPTION OF VIBRATION AND SOUND

The present invention relates to a rail track comprising at least two parallel rails supported by a non-compressible base body.

In many rail tracks the rails are connected with sleepers which lie on a base body, for instance gravel. An alternative is to mount the rails on a concrete slab or on a steel bridge.

Through rolling of the wheels of the train over the rails and as a result of the unevenness occurring on the wheels and rails, the wheels and the rails will be set into vibration. The vibrations in the rails become weaker as the distance relative to the contact point between wheel and the rail becomes larger. The reason that these vibrations become weaker is partly the result of dissipation in the rail but is caused to a much greater extent because the energy from the rail related to the vibrations is discharged to the base body via the rail support. A part of this discharged energy will be dissipated in the rail supports themselves and a part of this energy will be dissipated in the base body.

A resilient element is generally arranged between the rails and the sleepers, the concrete slab or the steel bridge. This is done to reduce the exchange of forces from the rail to the base body, whereby the life-span of the rail and the base body is prolonged. For this purpose the railway companies for instance apply the regulation that the rails must undergo a displacement of 1.5 to 2.5 mm at an axle load of 22.5 tons.

In addition, the transfer of vibrations to the base body is reduced by this resilient rail support. The resilient element insulates the vibrations, which results in a reduction of the vibration level of the base body and to a reduction in the sound radiation from the base body. The result of a better vibration insulation is that

the rail will begin to vibrate more strongly and therefore becomes a more significant source of noise.

Another sound-damping system for rail tracks known from the prior art is casting flexible material in the rail. This system has the drawback that the rail begins to radiate sound more efficiently because the casting mass acts as reflector for the sound radiated by the rail and because the casting mass begins to function as an extra source of noise. In addition, use is made herein of a large volume of expensive polymer material to fix the rail.

On the basis of the foregoing, it can be concluded that acoustic measures will have to be taken in a balanced manner in order to reduce the total noise level of all sources together and to obtain an improved vibration damping of the rail track.

The object of the present invention is to achieve a reduction in the noise production of rail tracks while still complying with the regulation of the railway companies. For this purpose a rail track is provided wherein the base body is provided with a channel-like recess for receiving the rail such that the running surface of the head of the rail lies free, wherein the bottom of the channel-like recess is provided with a first layer of yielding material which extends under the bearing surface of the foot of the rail, and wherein the surface between the running surface and the bearing surface of the rail is covered with a second layer of yielding material.

Since only the running surface of the head of the rail lies free, the sound-radiating surface of the rail is reduced. The layer also radiates a minimum of noise because the surface making contact with the air is minimal. In addition, energy is better dissipated by the layer in that this is in contact with the non-compressible base body. Finally, a sufficiently large static settlement can be achieved by the first yielding layer, this being a requirement of the railway companies. In addition, the thinner the layer, the better the dissipation and thus also the better the vibration damping of the rail. A thinner layer has the second advantage that a

minimal volume of expensive polymer material is required to embed the rail in the base body.

When a rail is used with a non-releasing form, such as the I-shaped rail known from the prior art, it is
5 advantageous for arrangement of the rail in the base body to provide herein a rectangular channel-like recess, whereafter the space between the second layer and the channel-like recess is filled with a filler body of non-compressible material. In this manner the thin layer
10 remains coupled to the non-compressible base body in improved manner and the above stated advantages are preserved.

The second layer preferably has a greater stiffness than the first layer. The stiffness of both layers is
15 preferably as high as possible so that maximum dissipation can be obtained. The stiffness in vertical direction is however bounded by the regulation of the railway companies relating to the displacement under load of the rail vehicle. The material of the yielding layers must
20 therefore be chosen such that the static/quasi-static requirement can be satisfied while at the same time the greatest possible acoustic stiffness is provided. For the horizontal direction the stiffness of the second layer may only be bounded by the fact that this layer must
25 still be able to shear sufficiently to allow the vertical displacement.

The second layer preferably has on the one side of the rail a different stiffness than on the other side. A coupling is hereby obtained between vertical and horizon-
30 tal vibrations, which is more advantageous for the damping of formerly substantially vertical rail vibrations, so that an even better vibration damping is provided.

Another possibility of obtaining a coupling between vertical and horizontal vibrations is to make use of a
35 rail with an asymmetrical cross-section.

For determined forms of rail it can be advantageous to embody the first and/or second layer of yielding material in interrupted manner so as to be able to comply with the regulations of the railway companies and also to

be able to obtain an improved vibration damping and sound reduction.

It has already been noted above that the advantage of embedding the rail with a yielding layer in a non-compressible base body is that the sound-radiating surface of the rail is hereby reduced. However, the base body now acts as reflector for the sound which is radiated by the head of the rail. The upper side of the base body can therefore be provided with a layer of sound-absorbing material.

The present invention will be further elucidated with reference to the annexed drawing. In the drawing:

fig. 1 shows a partial cross-section of a first embodiment of the rail track according to the present invention;

fig. 2 shows a partial cross-section of a second embodiment of the rail track according to the present invention;

fig. 3 shows a partial cross-section of a third embodiment of the rail track according to the present invention;

fig. 4 shows a partial cross-section of a fourth embodiment of the rail track according to the present invention;

fig. 5 shows a partial cross-section of a fifth embodiment of the rail track according to the present invention, and

fig. 6 shows a partly perspective view of the rail track according to the embodiment of fig. 1.

Corresponding components are designated in the drawing with the same reference numeral. A rail 2 is supported in a non-compressible base body 1, for instance of concrete. In order to support rail 2 a channel-like recess 3 is provided in base body 1. Rail 2 has a head 4 having on the top part thereof a running surface 5 for a wheel 6 of a rail vehicle (see fig. 1 and 5). A first layer of yielding material 9 is provided between the foot 7 of rail 2 and the bottom 8 of channel-like recess 3. The surface between running surface 5 and the foot 7 of the rail is covered with a second layer of yielding

material 10. The top side of base body 1 is provided with a layer of sound-absorbing material 11.

The first embodiment of fig. 1 shows a rectangular rail 2 with a curved running surface 5 on which wheel 6 of a rail vehicle supports. With the exception of running surface 5, the periphery of rail 2 is covered with a thin layer of yielding material 9, 10, wherein the second layer on the inside and outside of the rail has a greater stiffness than the first layer on the underside of rail 2. The stiffness of the first layer is bounded by railway company regulations relating to the displacement under load of the rail vehicle, for instance 1.5 to 2.5 mm at an axle load of 22.5 ton. The stiffness of the second layer 10 is only bounded by the fact that the material must still be able to shear sufficiently to allow vertical displacement. In addition, the material of the first yielding layer 9 and the second yielding layer 10 is chosen such that the highest possible acoustic stiffness is obtained in both horizontal and vertical directions. The open surface of the layer on the top side of the base body is minimal, whereby the layer radiates a minimum of noise. In addition, the layer dissipates vibrations better owing to the chosen material properties thereof, because the layer is coupled to a high-impedance base body and because the rail is completely enclosed, whereby horizontal vibrations are effectively damped.

Fig. 2 shows a second embodiment of the present invention, wherein a rail 2 known from the prior art is received in a rectangular channel-like recess 3. Once rail 2 with its covering has been arranged in channel-like recess 3 the space between second layer 10 and channel-like recess 3 is filled with a filler body 12 of non-compressible material. This can be the same material as that of base body 1 but has in any case a greater stiffness than second layer 10. According to the present invention one of both or both layers can take an interrupted form. In the embodiment of fig. 2 this is the case for first layer 9.

In a third embodiment of the present invention in fig. 3, use is made of another rail 2 which is more

flexible, i.e. has a lower moment of inertia, than the rail 2 of fig. 2 known from the prior art. Because a more flexible rail 2 is used, the first and second layer 9, 10 and base body 1 can be given a stiffer form, which results in an even better vibration damping.

The fourth embodiment of the present invention of fig. 4 shows, as does the third embodiment, a rail 2 with an asymmetrical form. Owing to the asymmetrical form of rail 2 a coupling is obtained between the vertical and horizontal vibrations, which is once again more favourable for the damping of vibrations. The advantage of the rail 2 used in the fourth embodiment is that it has a releasing form.

The fifth embodiment of fig. 5 shows a rail known from the prior art wherein the web recess of the rail is filled with extra mass 13. In this case the rail is formed by the I-profile and the mass. The rail is again covered with a layer of yielding material 9,10 and supported in a channel-like recess 3, wherein the space between second layer 10 and channel-like recess 3 is filled with a filler body 12.

Fig. 6 shows a partly perspective view of the rail track according to the present invention in accordance with the first embodiment of fig. 1.

The stiffness of the layers of yielding material can vary along the periphery of the rail if this is required in order to comply with railway company regulations and also to obtain an improved vibration damping and noise reduction.

It is also possible to line the bottom of the channel-like recess with one or other material before arranging the rail with its covering. This may for instance be necessary from a structural point of view or be required by the railway companies. In this case the bottom of the channel-like recess is formed by the top side of this lining.

A rail track according to the present invention is expected to achieve a noise reduction in the order of 5 decibels (A) on the rail noise relative to a normal rail track.

CLAIMS

1. Rail track comprising at least two parallel rails supported by a non-compressible base body, characterized in that the base body is provided with a channel-like recess for receiving the rail such that the running
5 surface of the head of the rail lies free, wherein the bottom of the channel-like recess is provided with a first layer of yielding material which extends under the bearing surface of the foot of the rail, and wherein the
10 surface of the rail is covered with a second layer of yielding material.

2. Rail track as claimed in claim 1, characterized in that the space between the second layer and the channel-like recess is filled with a filler body of non-
15 compressible material.

3. Rail track as claimed in claim 1 or 2, characterized in that the second layer has a greater stiffness than the first layer.

4. Rail track as claimed in any of the foregoing
20 claims, characterized in that the second layer has on the one side of the rail a different stiffness than on the other side.

5. Rail track as claimed in any of the foregoing claims, characterized in that the cross-section of the
25 rail is asymmetrical.

6. Rail track as claimed in any of the foregoing claims, characterized in that the first and/or second layer of yielding material is interrupted.

7. Rail track as claimed in any of the foregoing
30 claims, characterized in that the upper side of the base body is provided with a layer of sound-absorbing material.

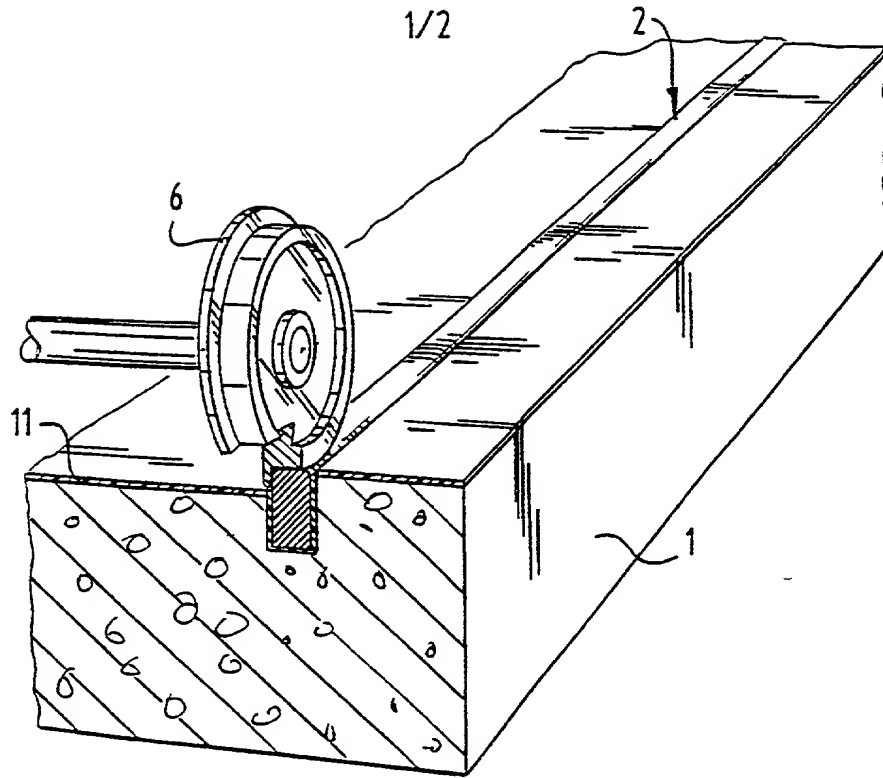


FIG. 6

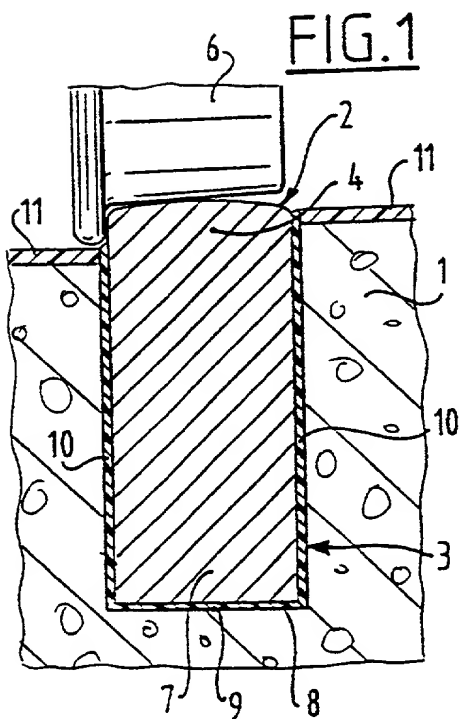


FIG. 1

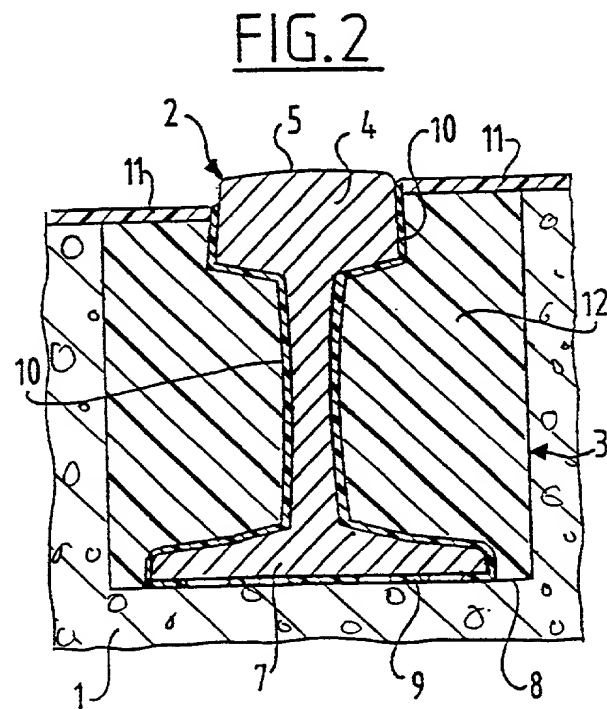


FIG. 2

2/2

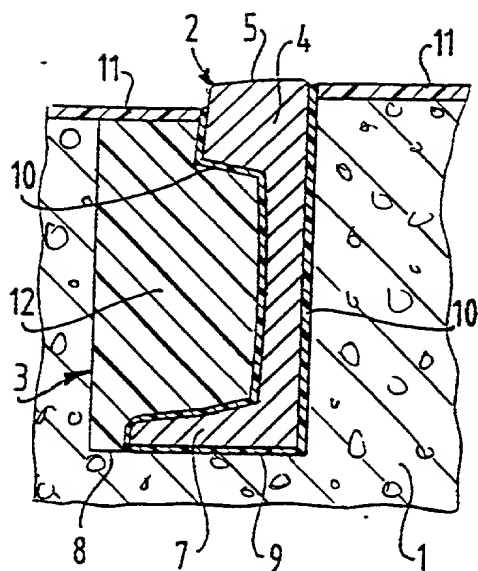


FIG. 3

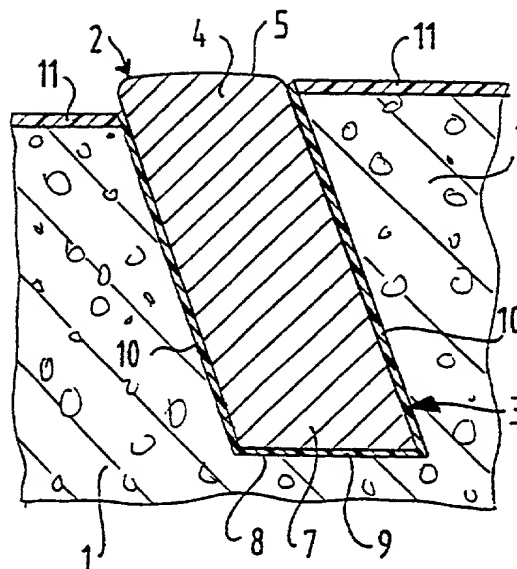


FIG. 4

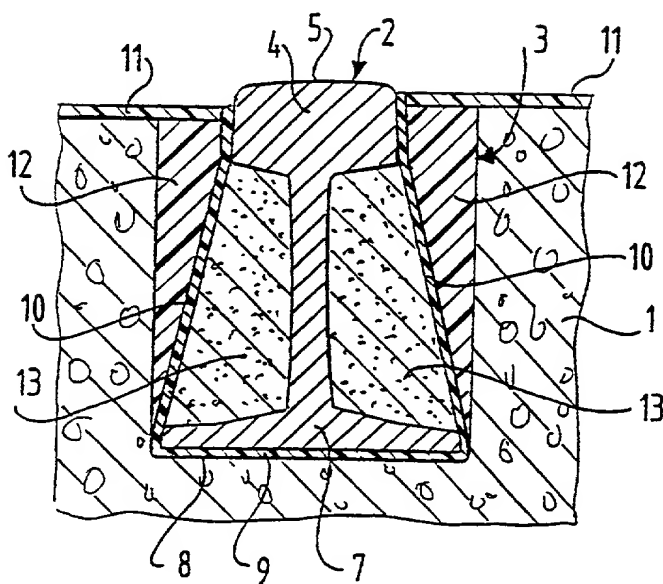


FIG. 5

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

RAIL TRACK HAVING ENHANCED ABSORPTION OF VIBRATION AND SOUND
the specification of which

(check one)

☐ is attached hereto.

☒ was filed on June 25, 1998 as PCT

International
Application Serial No. PCT/NL98/00368

and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed

1006483 The Netherlands 04/07/1997
(Number) (Country) (Day/Month/Year Filed)

☒ Yes ☐ No

(Number) (Country) (Day/Month/Year Filed)

☐ Yes ☐ No

(Number) (Country) (Day/Month/Year Filed)

☐ Yes ☐ No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

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